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EXAMINER	
LIN, JAMES	
ART UNIT	**PAPER NUMBER**
1762	

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,165	FUCHS ET AL.	
	Examiner	Art Unit	
	Jimmy Lin	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☒ Claim(s) *5-7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☒ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/10/05, 09/29/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: On page 2, paragraph 2, line 2, the phrase "the substrate or surface" has no prior reference as to what the "surface" refers to. Again on page 4, paragraph 5, line 3, "the surface" is unclear as to what it is the surface of.

2. On page 2, paragraph 3, line 1, "the layer" seems to refer back to the phrase "a layer in proximity to the substrate or surface" (page 2, paragraph 2, line 2). The term "the layer" can refer to either the substrate or the surface. Therefore, the term "the layer" requires further clarification.

3. On page 2, the 4th paragraph is awkwardly phrased. The phrase "which processes are described" (line 2) should be the beginning of a new sentence that reads "The processes are described".

4. On page 6, paragraph 1, line 2, "on" has been misspelled. Therefore, "on" must be changed to "one".

5. On page 4, paragraph 5, the phrase "the ratio...can be reproduced...between a factor of 0.4 and 1.2" is confusing. Is the factor between 0.4 and 1.2 comparing results reproduced in multiple experiments? The specification gives no clear indication of how the ratio or factor can be calculated or "reproduced"

6. On page 6, paragraph 1, lines 2 – 3, the phrase "the group C can equal 0" is unclear. According to the formula AB/C:EuD,E (page 5, paragraph 6, line 3), group C is

not a stoichiometric number so it is unclear as to how group C can equal the number zero.

7. On page 6, paragraph 5, line 8, the phrase "group C can equal 0" is unclear and requires the appropriate correction for the same reason set forth above.

8. On page 5, paragraph 6, line 3, the formula AB/C:EuD,E does not encompass Rb/CsBr:$EuBr_2$, Rb/CsBr/I:$EuBr_2$, and Rb/CsCl/Br:EuI,Cl in examples h, i, and j, respectively. The formula does not include an optional group wherein the Rb from the examples would fit.

9. On page 6, paragraph1, line 4, the phrase "wherein A, D and/or E can be equal" is confusing. "A is an alkali metal from the group consisting of Na, K, Rb, and Cs" (line 1) and "D and E are at least one halogenide from the group consisting of F, Cl, Br, and I" (line 3). The group that A consists of has no common elements as the group that D and E consist of. Therefore, A cannot equal D and/or E.

10. On paragraph 5, line 10 of the same paragraph, the phrase "wherein A, D, and/or E can be equal" is confusing for the same reason set forth above.

Appropriate correction is required.

11. The abstract of the disclosure is objected to because the phrase "a method forms" (line 1) is not correctly phrased. A more appropriate phrase would be "a method of forming" or "a method for forming". Correction is required. See MPEP § 608.01(b).

Claim Objections

12. Claims 5 – 7 are objected to because of the following informalities: "A group consisting of" (claim 5 line 2, claim 6 line 2, and claim 7 lines 4-6) does not use the

proper wording for Markush claims. Therefore, "a group" must be changed to "the group". Appropriate correction is required.

13. In addition, "the group F, Cl, Br and I" (claim 6 line3) should use the proper wording for Markush claims. Therefore, the phrase should read "the group consisting of F, Cl, Br and I".

Claim Rejections - 35 USC § 112

14. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

16. Claims 3 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claims 3 and 4 (line 4 and line 1, respectively) use the term "reproduced". This term is confusing for the same reasons set forth above. Is the factor between 0.4 and 1.2 comparing results reproduced in multiple experiments? The specification does not further explain how the ratio or factor can be calculated or "reproduced".

17. Claims 7 and 8 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the luminophore species exemplified in the specification, does not reasonably provide enablement for the entire scope of

luminophores encompassed by the formula recited in claim 7. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims. The entire scope of luminophores encompassed by the formula is unclear as set forth in the objections above in paragraphs 5 – 9 and in the 35 U.S.C. 112, second paragraph, rejections below. As the scope of the compounds is unclear, the specification cannot enable the entire scope of the claim.

18. Claims 3, 4, 7, and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

19. Claim 3 recites the limitation "the alkali halogenide layer" (line 3), "the substrate" (line 3), "the alkali halogenide layer" (line 4), and "the surface" (line 4). There is insufficient antecedent basis for these limitations in the claim.

20. In claim 7, the phrase "the group C can equal 0" (line 5) is unclear. According to the formula AB/C:EuD,E (line 3), group C is not a stoichiometric number so it is unclear as to how group C can equal the number zero.

21. In claim 7, the phrase "wherein A, D and/or E can be equal" (lines 6 – 7) is confusing. "A is an alkali metal from the group consisting of Na, K, Rb, and Cs" (line 4) and "D and E are at least one halogenide from the group consisting of F, Cl, Br, and I" (lines 5 – 6). The group that A consists of has no common elements as the group that D and E consist of. Therefore, A cannot equal D and/or E.

22. In claim 7, the scope of compounds encompassed by formula AB/C:EuD,E (line 3) is unclear in view of the problems cited above. Furthermore, one cannot ascertain a scope of compounds intended to be encompassed by the formula when read in view of the specification. For example, the specification recites compounds in examples h, i, and j that are intended to be encompassed by the formula. However, the formula does not accommodate both Rb and Cs being included, as is included in these compounds.

Claim Rejections - 35 USC § 102

23. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

24. Claims 1, 5, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Hell et al. (US 2003/0091729) as supported by the evidence of inherency included in "Preparation and Vaporization Thermodynamics of Europium Oxide Bromides" (Haschke et al.). Hell et al. teaches a method of manufacturing a stimulable phosphor by mixing CsX and EuOX, wherein X represents a halide, and depositing the mixture on a substrate by vapor deposition (paragraphs 40 – 42). In EuOX, the oxygen atom and the halide have a total charge of –3. The europium atom must have a valence state of three in order to provide a +3 charge. Thus, EuOX is an europium(III) oxyhalogenide.

25. Regarding claim 1, Hell et al. teaches that "it is beneficial to have the phosphor crystal deposited as some kind of piles, needles, tiles, etc." (paragraph 6, lines 2 – 4), and "the phosphor temporarily stores energy contained in the X-ray radiation pattern" (paragraph 3, line 6 – 7). By definition, a phosphor is a substance that emits light following absorption of radiation. Thus a phosphor reads into a luminophore. Therefore, Hell et al. anticipates a method of vapor-depositing a layer of a needle-shaped x-ray luminophore and vaporizing a mixture of an europium(III) oxyhalogenide and an alkali halogenide.

26. Regarding claims 1 and 6, the CsX taught in Hell et al. reads into an alkali halogenide. Specifically, CsX is an alkali halogenide comprising of at least one metal from the group consisting of Na, K, Rb and Cs and at least one halogenide from the group consisting of F, Cl, Br and I.

27. Regarding claim 5, Haschke et al. teaches that Eu_3O_4Br forms upon heating of EuOBr (equation 3 on page 4552). The process of heating is provided as the energy source in vaporization. EuOBr can be established as an europium(III) oxyhalogenide for the reasons above. Eu_3O_4Br is included in the formula of Eu_3O_4Hal, where Hal is at least one halogenide from the group consisting of F, Cl, Br, and I. Thus, Eu_3O_4Br is inherently formed in the method of vaporizing EuOBr, and in turn Eu_3O_4Br is vaporized in the process. Therefore, Hell et al. as supported by the evidence of inherency taught by Haschke et al. anticipates claim 5.

28. Claims 1, 5, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Leblans et al. (US 6,512,240) as supported by the evidence of inherency included in

"Preparation and Vaporization Thermodynamics of Europium Oxide Bromides" (Haschke et al.). Leblans et al. teaches a method of manufacturing a photostimulable phosphor screen by firing a mixture of CsX and EuOX, wherein X represents a halide, and depositing the mixture on a substrate by vapor deposition (column 7, lines 46 – 50). In EuOX, the oxygen atom and the halide have a total charge of –3. The europium atom must have a valence state of three in order to provide a +3 charge. Thus, EuOX is an europium(III) oxyhalogenide.

29. Regarding claim 1, Leblans et al. teaches that this method of preparation allows for the phosphor to deposit in the form of needle-shaped crystals (column 7, lines 56 – 58). By definition, a phosphor is a substance that emits light following absorption of radiation. Thus a phosphor reads into a luminophore. Therefore, Leblans et al. anticipates a method of vapor-depositing a layer of a needle-shaped x-ray luminophore and vaporizing a mixture of an europium(III) oxyhalogenide and an alkali halogenide.

30. Regarding claims 1 and 6, the CsX taught in Leblans et al. reads into an alkali halogenide. Specifically, CsX is an alkali halogenide comprising of at least one metal from the group consisting of Na, K, Rb and Cs and at least one halogenide from the group consisting of F, Cl, Br and I.

31. Regarding claim 5, Haschke et al. teaches that Eu_3O_4Br forms upon heating of EuOBr (equation 3 on page 4552). The process of heating is provided as the energy source in vaporization. EuOBr can be established as an europium(III) oxyhalogenide for the reasons above. Eu_3O_4Br is included in the formula of Eu_3O_4Hal, where Hal is at least one halogenide from the group consisting of F, Cl, Br, and I. Thus, Eu_3O_4Br is

inherently formed in the method of vaporizing EuOBr, and in turn Eu_3O_4Br is vaporized in the process. Therefore, Leblans et al. as supported by the evidence of inherency taught by Haschke et al. anticipates claim 5.

Claim Rejections - 35 USC § 103

32. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

33. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

34. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Leblans et al. in view of Goodman et al. (US 5,904,781). Hell et al. does not disclose a molybdenum vaporizer. Goodman et al., however, teaches that molybdenum evaporator heating boat elements are inert to hot phosphor constituents. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a molybdenum vaporizer, which is inert to hot phosphor constituents. One would

have been motivated to do so by the expectation of achieving a material of construction that does not react with the constituents.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Thursday 8 - 5:30 and Friday 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER